# KY Tech News

*the electronic magazine for career and technical education*

**May 2007**

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# Quick Tech

A fast look at career and technical education from around the state and around the country

**Marks and Kindred named to lead OCTE**

John Marks was recently named as Executive Director for the Office of Career and Technical Education by Department for Workforce Investment Commissioner Beth Smith. Marks had previously served as OCTE director of secondary education and technical training. He began his career in education as an electricity instructor at the Webster Co. ATC. Michael Kindred, who has served as principal at the Montgomery Co. ATC for the last 10 years will begin his duties as OCTE deputy executive director on June 1.

**State Conference Time**

Student organizations just finished gathering all across Kentucky for their annual conferences. Health Occupations Students of America (HOSA) held their conference in Louisville March 8-10 with 900 students and advisors attending. State Advisor Elizabeth Bullock said this conference was one of their most successful with students vying for a stop at the national conference through more than 50 state competitions. SkillsUSA followed that conference into Louisville with nearly 1000 attendees coming to town the first week in April. SkillsUSA holds regional competitions throughout the year giving students the opportunity to compete for a trip to the state conference where they will be eligible to win $770,000 in prizes and scholarship money. FBLA students finished their conference having more than 1500 participants gather for the annual event.

**National Technical Honor Society scholarships to be awarded**

Breckinridge County ATC student, Adam Hicks, was recently named as a recipient of the National Technical Honor Society's SkillsUSA scholarship. The award is one of only two given nationally each year, one at the secondary level and one at the postsecondary level. Hicks will receive the scholarship award at the National SkillsUSA conference in Kansas City, MO. this June. NTHS has become America's highest recognition for excellence in career and technical education. Each year the organization teams up with SkillsUSA to promote outstanding student achievement within career and technical education with the $1,000 scholarships. As part of the application process for the scholarship, Hicks had to submit an essay in which he wrote, "Programs like SkillsUSA and NTHS are ways to showcase and recognize our future American workers, therefore displaying the strength of the future American workforce."

# Machine Tool Technology and Industrial Maintenance: The Sky's the Limit

## Two CTE Program areas are taking students further than they can have imagined

Career and technical education (CTE) has undergone many name changes over the years since its formal beginning in the late 19th century. Learning a trade became vocational training which became applied technology training which is now referred to as CTE . Along with those changes have come technological advances in the program areas taught at area technology centers (ATC) and CTE centers across the state and throughout the country.

Virtually all CTE areas of study have been transformed, in many ways, by high-tech ingenuity creating a whole new look for traditional vocational training, opening countless doors for students.

Two of those program areas, machine tool technology (MTT) and industrial maintenance technology (IMT) have provided extensive training for those interested in hands-on industrial related fields since the Industrial Revolution. However, just what they represent and what kinds of jobs are available once training is complete has been somewhat of a mystery for those outside of the industrial realm.

Steve Bennett, the academic consultant for manufacturing related programs in the Office of Career and Technical Education (OCTE), has the job of making the two specialized programs easier to understand for those in the ATC system. He says they can create many avenues for students as they head into postsecondary and workforce endeavors.

"An IMT program potentially trains students to become machinery maintenance machinists, fluid power technicians, (hydraulics & pneumatics), industrial electricians, and industrial mechanics. These are really subcategories of job titles that stem from the courses that are taught in the IMT program," said Bennett. "Some of these students will become skilled at trades in these areas and some will branch out with further post secondary education, into a specialized related field such as machinist, welder, industrial electrician, etc. Industrial maintenance technicians are vital to the continual operation of all production manufacturing machines in the factory setting."

Some examples of these skilled positions include: Programmable Logic Controller technicians in the industrial electrician area, machinery maintenance technicians, and mechanics. These jobs require the ability to trouble shoot technical problems using precision measuring tools and instrumentation, read blueprints and schematics, and make the required repairs to a wide variety of machines in order to maintain a steady flow of production within the factory setting.

"MTT trains students to properly identify and operate the precision tools and equipment required to produce precision metal parts according to blueprint dimensions. This program provides the student with the necessary experience in the use of precision measuring tools, basic shop hand tools, and various machine operated and hand cutting tools," said Bennett.

The MTT student learns industrial shop safety in all phases of the program along with learning to read, follow, and draw mechanical blueprints. The student also uses both manual machines and Computer Numerically Controlled (CNC), machines to produce precision manufactured parts. These machines include: lathes, milling machines, drill presses, grinders, CNC machining and turning centers and a large variety of accessories for each machine. The program prepares the student for a high demand career in the world of advanced and skilled manufacturing.


Marion County ATC Students Brittany Curtsinger and Brian Kelty use measuring instruments to check machined pieces.

## Real-World Applications

While performing these tasks in a controlled lab or shop area is one thing, taking these skills into a mainstream working environment can be totally different. One solution to overcoming this obstacle is through cooperative education programs between local ATCs or CTE centers and their surrounding industry partners.

The Marion County ATC recently began a co-op venture with their MTT program, starting out slowly with one student, who gathered much needed experience, generating support from local industry.

Brian Kelty is in his fourth year of taking classes in machine tool technology, industrial maintenance, carpentry, and welding at the ATC. While the school has long sent health sciences students out in the medical fields area, Kelty becomes the first to work in one of Marion County's 30 plus manufacturing facilities to participate in an industrial maintenance cooperative education placement.

"This has given me the opportunity to apply what I have learned in class and take all these skills and use them," said Kelty.

Marion County ATC Principal Laura Arnold echoes those sentiments saying the program is providing more than just the opportunity for students to apply their skills.

"I think the co-op program accomplishes two main goals. First, our students get an opportunity to apply what they have learned in the classroom into a real-life situation. Secondly, this gives employers in our community a chance to experience the kind of students, and future employees, we have here at our school," said Arnold.


Brian Kelty and George Gribbins of Angell Manufacturing work on a project.

John Turner, manager of Angell Manufacturing where Kelty works after finishing his classes, says he is feels confident about the potential of the future workforce in his area and sees this venture as a way to prepare students.

“I’m very optimistic. The big challenge for young people is to have transferable skills. The best service you can provide for them is to confront them honestly and say here’s what the world is going to look like, how do we get prepared for it?” said Turner. “They have to expect for the rest of their life there is going to be continuing education upgrades just to stay current.”

Marion County Public Schools Superintendent Roger Marcum believes this type of program provides a way to prepare students for postsecondary opportunities and real life situations.

“As educators we are constantly talking about the importance of opportunities for real-life application of learning for our students and cooperative education placements in career and technical education provide those opportunities for many students,” Marcum said. “This real-life application of their knowledge and skills makes their learning relevant and helps them understand the need to continue their education after high school. Understanding that more knowledge and skill leads to more demand for you in the marketplace is important in seeking and planning for post-secondary education. Our students must first see the need and relevance! They begin to understand the full range of career opportunities available to them, if they are properly prepared to do the work.”

Marcum added, “Cooperative education placements also provide opportunities for our students to experience and understand the expectations of employers in regard to those soft skills that are essential to the success of any future employee.”

Today’s technical training, whether it be in manufacturing or other fields, is more than learning a trade. It provides students with the tools to allow their future workforce partners to be competitive.

"Our industry base, as we know it, can not survive without technical training that will allow workers to obtain the skills needed to compete in this global economy," said Tom Lund, Executive Director, Marion County Office of Economic Development.

As advanced as manufacturing technology has become, today’s students have greater opportunities to learn a skill that can take them far. Thanks to co-op programs and educational and industry partners willing to make this happen, the ladder to success is a bit easier to climb.

# A Perfect Match

## Partnerships between local industries and technical education centers are proving to be a benefit to both

*One thing unique to career and technical education (CTE) programs, in particularly throughout the KY Tech system, is the relationship many schools have with local business partners.*

*In many cases those business leaders serve on the schools' advisory committees. They know their time and resources are helping to assure them of a quality future workforce.*

*While these kinds of relationships can be found in many areas of the state, two communities and their area technology centers (ATC) have raised the bar on the level of collaboration created between those schools, their program areas and the local business community.*

### Breckinridge County

The Breckinridge County ATC and Whitworth Industries formed a relationship that began more than 20 years ago. This partnership has paved a way for economic development growth in the community and career paths for students who have been involved in the MTT program.

Kenny Whitworth was a MTT instructor at the ATC in the 1980's. He took his expertise into the classroom and began to build one of the most successful MTT programs anywhere.

But even with his departure from the school to start his own business, Whitworth never forgot the program. Over the years he has continued to give back, hiring former students and seeing that the program receives all it needs to be successful.

Dean Monarch and Tom Thompson currently serve as instructors for the Breckinridge County program. Ironically both were students of Whitworth. Monarch also worked for him in the private sector.

"This program has meant a lot to the machine tool community not only here in Breckinridge County, but throughout the state. When people in the industry talk about secondary programs, they all know who we are and the kinds of students we have," said Monarch.

Most schools would feel fortunate just to have one company like Whitworth Tool in their backyards. But Breckinridge County has the good fortune of having many quality businesses to partner with due in part to the quality workforce that has come from the ATC.

"Breckinridge County ATC Machine Tool Technology owes a great deal of gratitude to our local industry," said Thompson. "Companies such as Commonwealth Machining, Whitworth Tool, TGH Machine & Welding, Scheu & Kniss, and Campbell's Machine help our school in many ways. Not only do they help us financially, but they contribute to the success of our students via guest speakers, co-op's, and NIMS (National Institute for Metalworking Skills) Met-tech committee members. These companies have donated money, materials, and time to better our program. We would not be as successful at training our students if it were not for our local industry."

While the groundwork for such collaboration was laid many years ago, it's the ongoing efforts of the staff, students and a former teacher that have put Breckinridge County ATC on the world stage in machine tool technology.

**Carroll County**

The Carroll County Training Consortium (CCTC) has become the key link among various area companies, the Carroll County ATC and Jefferson Community College's (JCC) Carrollton Campus in an ongoing effort to provide specialized training and educational opportunities in specific programs.

Bradley Henning, a junior machine tool technology student (left) works with Dean Monarch on a project in the machine tool lab.

The CCTC started as a steering committee for the School to Work (STW) program established in 1997 through a $1.7 million federal grant. The program brought together the ATC, local board and JCTC to form a consortium.

Area industries, which became members of the consortium, were surveyed as part of the STW initiative to determine local needs for an educated and trained workforce. As a direct result, three ATC programs were created along with an 8th grade introductory lab.

While the seed money for the technical programs came from STW funding, equipment money was secured through industry donations of $560,000.00 matched by capacity building grants through the Bluegrass State Skills Corporation.

Today's consortium industry members include Gallatin Steel, North American Stainless, Arkema Inc., Dow Corning, Steel Technologies, ArvinMeritor, Inc. and BPB Manufacturing now CertainTeed.

This unique gathering of business and industry has provided the Carroll County ATC with much needed equipment and training while supplying those businesses with a highly skilled and trained workforce.

The Industrial Maintenance program is one of the three programs that started through the STW initiative and has become a positive influence on the workforce in Carroll County.

Instructor Chuck Hollingsworth has been with the program since its inception and says it has been a great influence on the students and the community.

"Much of the success of his program is contributed to the dedication of the CCTC Scholarship Program," said Hollingsworth. "This has positively effected the enrollment of my class. Many of the young men and women do not know what they want to do for a career as juniors in high school. Once they learn that there is an option of obtaining a scholarship to JCTC when they graduate, a lot of their grades and attitude on possible opportunities on life after high school drastically improves."

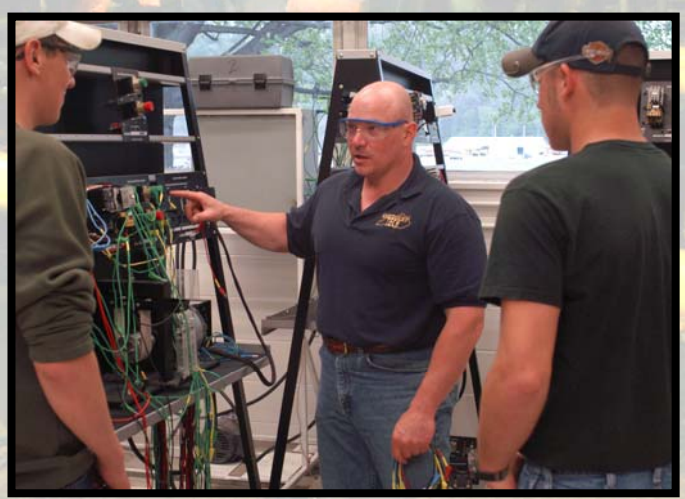
Many of the scholarship recipients have an opportunity to co-op with one of the local consortium companies while they are enrolled at JCTC as long as they have a 2.0 GPA or greater.

Jill Ralston, a training and development specialist with the Office of Career and Technical Education, which oversees the Carroll County ATC, helps to forge pathways between area businesses and the ATC. She says local businesses need a qualified skilled workforce.

"The CCTC, Carroll County ATC and JCTC have made great strides in assisting the local industry in obtaining the skilled labor that they desire," she said. "With Carroll County's abundance of industry due to its geographical location to the Ohio River, I've seen more of our new workforce for these manufacturing facilities coming not only from Carroll County, but adjacent counties as well over the past five years. It has been an honor for me to see these former Carroll County ATC students out in the community being prosperous and productive young members of our communities due to these initiatives."

Local partnerships like the ones at Carroll County and Breckinridge County enjoy are beneficial both to the schools and their local industries. As more and more jobs become technology based, these schools will become more crucial assets in providing a highly skilled and qualified future workforce.

Carroll Co. ATC Industrial Maintenance Instructor Chuck Hollingsworth (center) goes over a procedure in his classroom with students.



# CAD: The Art of Drafting Via Computer Technology

## The old school drafting table has been replaced by new school technology, but the idea is still the same

If you have ever taken a piece of paper and sketched a design or idea on it for future reference or to show someone your plan, you have performed a type of drafting procedure in its simplest form.

For as long as there has been a human race, the art of drafting has been practiced. From illustrations drawn on cave walls depicting day to day life, to present day computer technology used to create complicated diagrams of anything from wiring circuits to rocket ships, drafting is truly one of the oldest professions known to mankind.

While the idea of drafting has basically remained the same, the way in which it is performed has come a long way since the days of cave drawings. Computers have become the new drafting tables and high tech software has in many ways, replaced the mechanical pen. Today's drafting professional possesses an extensive knowledge of mathematics, science, physics and computer skills along with the skilled eyes and ideology of an artist. While CAD is being used in a wide array of business and industry settings, it is also necessary in other types of high profile, technology based fields such as engineering.

Joe Morgan, the branch manager for computer based technology curriculum in the Office of Career and Technical Education, has seen the technological transformation of programs like drafting and says the best is yet to come.

"Computers have opened so many doors for those in the drafting field from manufacturing jobs to engineering. Business and industry representatives have said that engineers are often expected to be drafters as well," said Morgan. "

“The old style of board drafting was so labor intensive that you had to have drafters who converted raw ideas from engineers into detailed drawings from which to build. Now, the engineers often create ideas directly into CAD providing a faster turn around from concept to finished design. Unfortunately, most high school students do not know this and would benefit from taking CAD courses if they are interested in becoming engineers,” continued Morgan.

Curriculum taught through Area Technology Centers (ATC), which are operated by the Office of Career and Technical Education, concentrate mainly in two areas that use CAD, architecture and manufacturing. Some of the CAD courses include Engineering Graphics, Introduction to Architecture, Applied Mathematics and Computer Fundamentals.

Stephanie Wheeler, CAD instructor at the Russell ATC, said CAD helps students realize the bond between academics and technical education.

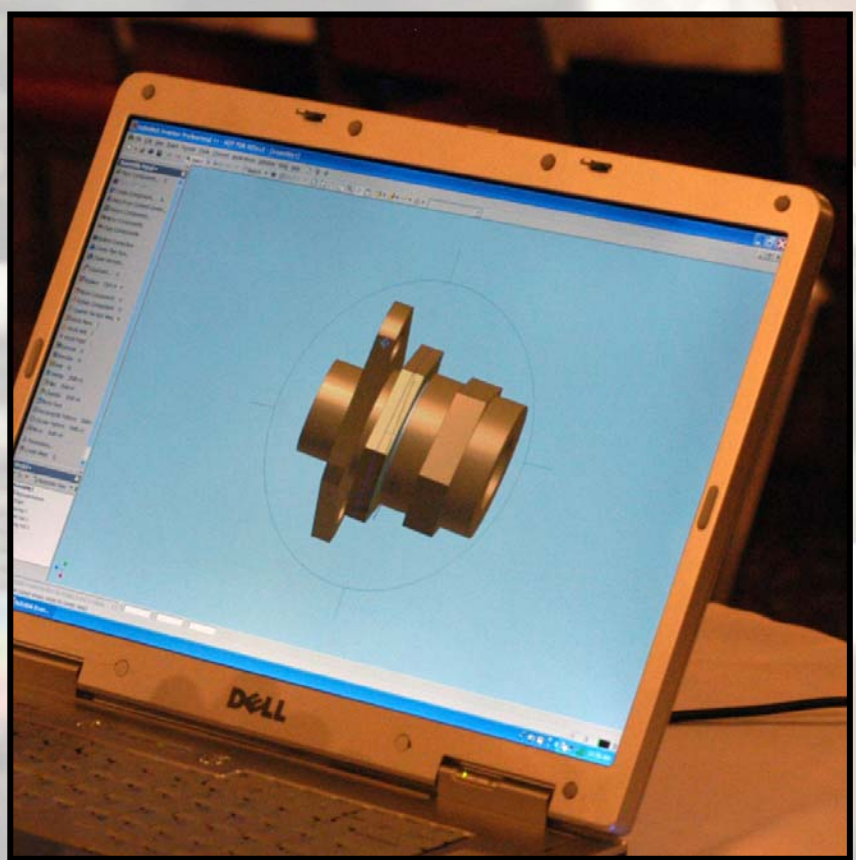
“Academically, CAD has been available for usage for many years. Teaching this information to students has incorporated geometry, basic algebra and practical thinking. Students can apply the information they have retained into a project that they can actually see or build. This helps the students understand the connection between academics and technology,” said Wheeler. “Students have learned that CAD is utilized in business and industry throughout the country from building a simple home, to remodeling a loft in New York to building a bridge that spans from one state to another. Through the CAD process, the students can create hands-on inventions that may open their mind to a career in Drafting.”

According to the American Design Drafting Association (ADDA), there are almost one hundred different work disciplines for drafters and designers, including aerospace, highways, parks and recreation, electronic, nano-technology, medical, furniture, high voltage electricity, automotive and more.

Such a wide range of job possibilities could help to lure students with a diverse academic background into this specialized program area.

With new academic-technical initiatives on the horizon for CTE courses, the connection between math and science and the basics for CAD are more evident. They are helping to bring new awareness of how CTE courses can increase the comprehension of such academic courses.

The age of the computer technology has truly changed many aspects of all traditional CTE program areas including CAD. But the original purpose of the program hasn't changed much from those first drawings on cave walls. And somewhere in the future what we use now will seem archaic, but the idea will remain the same.




Current technology provides designers with the ability to design and even print in 3 dimensions.

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OCTE is an agency of the Education Cabinet's Department for Workforce Investment. OCTE administers 55 area technology centers, which are secondary schools that offer students hands-on training in business, graphics, construction, manufacturing, automotive and information technology fields and health and human services.

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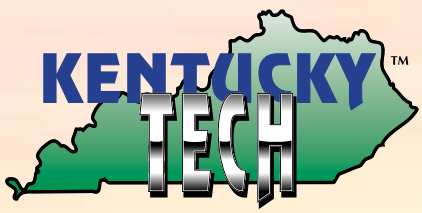


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